

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference IT/SC/N9557	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 00/ 00740	International filing date (day/month/year) 01/03/2000	(Earliest) Priority Date (day/month/year) 02/03/1999
Applicant KING'S COLLEGE LONDON		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 09 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2.



Certain claims were found unsearchable (See Box I).

3.



Unity of invention is lacking (see Box II).

4. With regard to the title,

the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

IDENTIFICATION OF BACTERIA BY AMPLIFICATION AND PROBING

5. With regard to the abstract,

the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.



None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 00/00740

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

As a result of the prior review under R. 40.2(e) PCT,
part of the additional fees are to be refunded.

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☒ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

1-8, 10-19, 21-27

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☒ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 13-16,25 (complete); 1-6,8,10-12,17,19,21-24,26, 27 (partial)

INVENTION 1:

A primer set, suitable for amplification of bacterial 23S rRNA, comprising SEQ ID Nos 1 or 2, a labelled DNA sequence comprising such a sequence, an oligonucleotide probe according to SEQ ID Nos:3-4, suitable for detecting *Proteus* species, a solid support material carrying such probe(s), a diagnostic kit comprising such primers and/or probe(s), as well as a method of identifying bacteria using such primers and probe(s).

2. Claims: 1-8,10-12,17-19,21-24,26,27 (partial)

INVENTION 2:

An oligonucleotide probe according to SEQ ID Nos:5,8,10,37,48, suitable for detecting *Escherichia* species, a solid support material carrying such probes, a diagnostic kit comprising such probe(s), as well as an amplification method of identifying bacteria using such probe(s).

3. Claims: 1-4,6,8,10-12,17,19,21-24,26,27 (partial)

INVENTION 3:

An oligonucleotide probe according to SEQ ID Nos:6,7, suitable for detecting *Klebsiella* species, a solid support material carrying such probes, a diagnostic kit comprising such probe(s), as well as an amplification method of identifying bacteria using such probe(s).

4. Claims: 1-8,10-12,17-19,21-24,26,27 (partial)

INVENTION 4:

An oligonucleotide probe according to SEQ ID Nos:9,38,49, suitable for detecting *Enterobacter* species, a solid support material carrying such probes, a diagnostic kit comprising such probe(s), as well as an amplification method of identifying bacteria using such probe(s).

5. Claims: 1,2,4,6,8,10-12,17,19,21-24,26,27 (partial)

INVENTION 5:

An oligonucleotide probe according to SEQ ID NO:11, suitable for detecting *Salmonella* species, a solid support material carrying such probe, a diagnostic kit comprising such probe, as well as an amplification method of identifying bacteria

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

using such probe.

6. Claims: 1,2,4,6-8,10-12,17-19,21-24,26,27 (partial)

INVENTION 6:

An oligonucleotide probe according to SEQ ID Nos:12,15,18,30-35, suitable for detecting Streptococcus species, a solid support material carrying such probes, a diagnostic kit comprising such probe(s), as well as an amplification method of identifying bacteria using such probe(s).

7. Claims: 1-6,8,10-12,17,19,21-24,26,27 (partial)

INVENTION 7:

An oligonucleotide probe according to SEQ ID NO:13, suitable for detecting Pseudomonas species, a solid support material carrying such probe, a diagnostic kit comprising such probe, as well as an amplification method of identifying bacteria using such probe.

8. Claims: 1,2,4,7,8,10-12,18,19,21-24,26,27 (partial)

INVENTION 8:

An oligonucleotide probe according to SEQ ID NO:14, suitable for detecting Haemophilus species, a solid support material carrying such probe, a diagnostic kit comprising such probe, as well as an amplification method of identifying bacteria using such probe.

9. Claims: 1-6,8,10-12,17,19,21-24,26,27 (partial)

INVENTION 9:

An oligonucleotide probe according to SEQ ID Nos:16,19, suitable for detecting Enterococcus species, a solid support material carrying such probes, a diagnostic kit comprising such probe(s), as well as an amplification method of identifying bacteria using such probe(s).

10. Claims: 1,2,4,6,8,10-12,17,19,21-24,26,27 (partial)

INVENTION 10:

An oligonucleotide probe according to SEQ ID NO:17, suitable for detecting Aeromonas species, a solid support material carrying such probe, a diagnostic kit comprising such probe, as well as an amplification method of identifying bacteria using such probe.

11. Claims: 1-6,8,10-12,17,19,21-24,26,27 (partial)

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

INVENTION 11:

An oligonucleotide probe according to SEQ ID Nos:20-26, suitable for detecting Staphylococcus species, a solid support material carrying such probes, a diagnostic kit comprising such probe(s), as well as an amplification method of identifying bacteria using such probe(s).

12. Claims: 1,2,4-6,8,10-12,17,19,21-24,26,27 (partial)

INVENTION 12:

An oligonucleotide probe according to SEQ ID NO:27, suitable for detecting Burkholderia species, a solid support material carrying such probe, a diagnostic kit comprising such probe, as well as an amplification method of identifying bacteria using such probe.

13. Claims: 1,2,4,6,8,10-12,17,19,21-24,26,27 (partial)

INVENTION 13:

An oligonucleotide probe according to SEQ ID NO:28, suitable for detecting Stenotrophomonas species, a solid support material carrying such probe, a diagnostic kit comprising such probe, as well as an amplification method of identifying bacteria using such probe.

14. Claims: 1,2,4,5,7,8,10-12,18,19,21-24,26,27 (partial)

INVENTION 14:

An oligonucleotide probe according to SEQ ID NO:29, suitable for detecting Listeria species, a solid support material carrying such probe, a diagnostic kit comprising such probe, as well as an amplification method of identifying bacteria using such probe.

15. Claims: 1,2,4,7,8,10-12,18,19,21-24,26,27 (partial)

INVENTION 15:

An oligonucleotide probe according to SEQ ID NO:36, suitable for detecting Acinetobacter species, a solid support material carrying such probe, a diagnostic kit comprising such probe, as well as an amplification method of identifying bacteria using such probe.

16. Claims: 1,2,4,6-8,10-12,17-19,21-24,26,27 (partial)

INVENTION 16:

An oligonucleotide probe according to SEQ ID Nos:38,39, suitable for detecting CNS species, a solid support material carrying such probes, a diagnostic kit comprising such

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

probe(s), as well as an amplification method of identifying bacteria using such probe(s).

17. Claims: 12,4,6,8,10-12,17,19,21-24,26,27 (partial)

INVENTION 17:

An oligonucleotide probe according to SEQ ID NO:41, suitable for detecting Plesiomonas species, a solid support material carrying such probe, a diagnostic kit comprising such probe, as well as an amplification method of identifying bacteria using such probe.

18. Claims: 1,2,4,7-12,18-24,26,27 (partial)

INVENTION 18:

An oligonucleotide probe according to SEQ ID Nos:42,43,60,61, suitable for detecting Neisseria species, a solid support material carrying such probes, a diagnostic kit comprising such probe(s), as well as an amplification method of identifying bacteria using such probe(s).

19. Claims: 1,2,4,6,8,10-12,17,19,21-24,26,27 (partial)

INVENTION 19:

An oligonucleotide probe according to SEQ ID Nos:44,45, suitable for detecting Campylobacter species, a solid support material carrying such probes, a diagnostic kit comprising such probe(s), as well as an amplification method of identifying bacteria using such probe(s).

20. Claims: 1,2,4,6,8,10-12,17,19,21-24,26,27 (partial)

INVENTION 20:

An oligonucleotide probe according to SEQ ID NO:46, suitable for detecting Helicobacter species, a solid support material carrying such probe, a diagnostic kit comprising such probe, as well as an amplification method of identifying bacteria using such probe.

21. Claims: 1,2,4,6,8,10-12,17,19,21-24,26,27 (partial)

INVENTION 21:

An oligonucleotide probe according to SEQ ID NO:47, suitable for detecting Ralstonia species, a solid support material carrying such probe, a diagnostic kit comprising such probe, as well as an amplification method of identifying bacteria using such probe.

22. Claims: 1,2,4,6-12,17-24,26,27 (partial)

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

INVENTION 22:

An oligonucleotide probe according to SEQ ID Nos:50-52,62,63, suitable for detecting Chlamydia species, a solid support material carrying such probes, a diagnostic kit comprising such probe(s), as well as an amplification method of identifying bacteria using such probe(s).

23. Claims: 1,2,4,6,8,10-12,17,19,21-24,26,27 (partial)

INVENTION 23:

An oligonucleotide probe according to SEQ ID NO:53, suitable for detecting Coxiella species, a solid support material carrying such probe, a diagnostic kit comprising such probe, as well as an amplification method of identifying bacteria using such probe.

24. Claims: 1,2,4,6,8,10-12,17,19,21-24,26,27 (partial)

INVENTION 24:

An oligonucleotide probe according to SEQ ID Nos:54,55, suitable for detecting Rhodococcus species, a solid support material carrying such probes, a diagnostic kit comprising such probe(s), as well as an amplification method of identifying bacteria using such probe(s).

25. Claims: 1,2,4,6,8,10-12,17,19,21-24,26,27 (partial)

INVENTION 25:

An oligonucleotide probe according to SEQ ID Nos:56-58, suitable for detecting Mycobacterium species, a solid support material carrying such probes, a diagnostic kit comprising such probe(s), as well as an amplification method of identifying bacteria using such probe(s).

INTERNATIONAL SEARCH REPORT

National Application No

GB 00/00740

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, STRAND, WPI Data, PAJ, MEDLINE, BIOSIS, EMBASE, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96 00298 A (INNOGENETICS NV ; JANNES GEERT (BE); ROSSAU RUDI (BE); HEUVERSWYN H) 4 January 1996 (1996-01-04)	1-5, 10-12, 14,15, 25,27
Y	* see especially page 64, line 20 as well as SEQ ID NO:156 * the whole document	17-19, 21,22, 26,27
X	EP 0 395 292 A (BARRY THOMAS GERARD ; GANNON BERNARD FRANCIS XAVIER (IE); IRELAND B) 31 October 1990 (1990-10-31) * see especially claims 1-7 * the whole document	1-5,10, 11

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

4 October 2000

Date of mailing of the international search report

12.10.2000

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	LEW A E AND DESMARCHELIER P M: "Detection of <i>Pseudomonas pseudomallei</i> by PCR and hybridization" JOURNAL OF CLINICAL MICROBIOLOGY, vol. 32, no. 5, 1994, pages 1326-1332, XP000921285 the whole document	1,10,11
X	WO 96 24686 A (BIO MERIEUX ;MABILAT CLAUDE (FR); SALLEN BRUNEHILD (FR)) 15 August 1996 (1996-08-15) abstract; example 1	14
X	WO 88 03957 A (GEN PROBE INC) 2 June 1988 (1988-06-02)	14,15, 17,19, 25,26
Y	* see especially claims 222 and 195 * the whole document	1-6,8, 10-12
X	WO 90 14444 A (GENE TRAK SYSTEMS) 29 November 1990 (1990-11-29)	17,19
Y	* see especially page 9, line 21 * the whole document	1,3,5,6, 8,12,21, 22
Y	US 5 521 300 A (SHAH JYOTSNA S ET AL) 28 May 1996 (1996-05-28) * see especially COLUMN 83, SEQ ID NO:47 * the whole document	1-4,6-8, 10-12, 17-19, 21,22, 26,27
Y	LUDWIG W ET AL.: "PCR-based preparation of 23S rRNA-targeted group-specific polynucleotide probes" APPLIED AND ENVIRONMENTAL MICROBIOLOGY, vol. 60, no. 9, 1994, pages 3236-3244, XP000921283 the whole document	1-8, 10-12
A	US 5 582 978 A (SHAH JYOTSNA) 10 December 1996 (1996-12-10) the whole document	
P,X	US 6 001 564 A (BERGERON MICHEL G ET AL) 14 December 1999 (1999-12-14) * see especially column 9, paragraph 1 * the whole document	1-20, 25-27

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

GB 00/00740

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

GB 00/00740

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